Emc² DOCKET FILE COPY ORIGINAL

Entertainment Made Convenient2 SM

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APR 26 1993

FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

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Ms. Donna R. Searcy, Secretary
Office of the Secretary

[redacted]

Simply stated, the issue is *compatibility without compromising signal security.* In fact, it is the efforts at signal protection that is the largest cause of incompatibility, as so many technologies are used in attempting to safely deliver programming. Therefore, security is clearly the disease and must therefore be dealt with, not just the symptoms of incompatibility which are the varied and confusing technologies as a result from a lack of standardization. The degree and complexity of the related issues (compression, transmission standards, etc.) that would need to be managed in order to achieve compatibility as discussed in the responses from the EIA and NCTA are rather overwhelming.

However, a standardized "security system" is manageable. How? The answer is contained in addressability. On numerous occasions by various parties including the NCTA in its summary response to the Commission, addressability is called the "ultimate answer" for security control.

Therefore, our suggestion is to develop a standard for an addresser/tuner (certain smart card usage options may be appropriate) which can be built into various types of devices. This would then allow for a natural evolution towards standardized operating systems (with security having been resolved), thereby negating most if not all of the problems which cause incompatibility.

Please allow us to continue by providing the Commission with the following brief explanation of our project, a subject about we are much more knowledgeable and confident!

Simply stated, Emc² will be, in the true sense of the VCR and its success, "electronic video rental." This will be accomplished by an electronically delivered "less than real time" (a 5 minute "burst" for a 100 minute movie) "download" of the program (movie, game, multimedia) to the VCR (or other electronic storage device; i.e. write/erase optical disk) so that when the delivery is completed, the consumer/end user will then have the product to be used at their convenience, and most importantly, control. Each VCR/device is individually addressable and *requires no converter or decoder box or complicated scrambling system,* as the signal is naturally protected (and by other means) by its less than real time structure, and anti-copy is built into the VCR preventing illegal copying by another VCR. Multiple consumer electronics manufacturers will be licensed (no royalty is charged to them) to include the Emc² "feature" into their product lines, be that a VHS VCR or other. Emc² will be the service provider/electronic video rental store by joint venturing with varied partners in different markets/countries.

We will sell programs "retail" in some cases directly to the consumer i.e., by satellite, and in other cases we will "wholesale" our products to intermediaries, i.e., cable companies, who then "retail" the product to people who would have the VCR connected to their cable. We are finding a great deal of interest and enthusiasm from cable operators, many of whom are saying they do not care to operate a PPV system, they do not believe in the staggered start time multiplexing, and do not believe the consumer will settle for less than the VCR and video rental has offered in terms of convenience and particularly the ability to control the scheduling and viewing, while using pause, rewind, and fast forward. We are beginning to hold talks between cable industry and consumer electronics representatives.

To be somewhat philosophical, ours is a system based upon decentralized distribution/access/usage of programming/information wherein the consumer is in charge, versus centralized control with the consumer having less control and *perceiving* much less control.

Less philosophically, our project is an obvious next step in the evolutionary product life cycle of the VCR. To support our concept please consider the following:

<u>The Basics</u>

-the VCR has been extremely successful

-video rental has also been extremely successful, in fact, most experts say it was video rental that really caused the VCR to become the overwhelming success it has been

-what is the magic the VCR provides that TV, Cable TV, Satellite TV, Wireless TV, or the cinema, etc. does not satisfy and therefore makes video rental so popular? ***CONVENIENCE *CONTROL *CHOICE**

<u>What is next for the VCR?</u>

As is often done for successful products, let's take a look at the VCR and question; how could we extend its life cycle (which takes advantage of a successful history), with a logical and evolutionary (not revolutionary) next step and/or improvement(s)?

First consideration, what is the VCR used for?

-time shifting (for which a great deal of effort and progress has been put forth for the evolution of this particular usage)

-playing of camcorder movies

-movie rental (some experts claim that as high as 80% of the public can not use their VCRs to record...translation; ***the VCR is for renting and watching movies***)

So, if the VCR is primarily for video rental, are there any improvements to be made to this portion of its usage, and what would then be the next evolutionary step in its life cycle? Quite obviously, it is the electronic delivery (delivery can be by numerous methods including cable) of the programming, thereby eliminating the trips out to get a movie (often to find the movie of chose is out of stock), as well as the return trip, and other inconveniences and inefficiencies. This delivery must necessarily be done in "less than real time", as there is not sufficient bandwidth to allow everyone to chose what they want, when they want it, while being able to *control the viewing/usage*, with the deliveries being in real time.

Again, Emc^2 starts, but does not end with video rentals. Video rental is the

Emc^2
Entertainment Made Convenient^2

For your further reference/background, and understanding of our efforts, I have included additional information in a form which you may not be accustomed to. As you may know, comic books and animated characters are quite popular in Asia. We therefore have our own comic, and I thought you may enjoy/find amusing a glimpse of such. The Emc^2 comic, is actually a serious business tool for explaining what we are about. The usage of this comic includes informing our joint venture partners, studios, and consumer electronics manufacturers, etc., about our project. While our comic is 19 pages in total, I have just sent you a sampling.

We have sincerely appreciated this opportunity to have presented this information to the Commission and would be very pleased to meet with you (Mr. Franca, May 5th, 1993) to discuss Emc^2 in further detail.

Thank you again.

Respectfully,

Will Graven

Electronic Engineering
TIMES

THE INDUSTRY NEWSPAPER FOR ENGINEERS AND TECHNICAL MANAGEMENT

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A CMP Publication

This week:
Special Report
Part 1 of our continuing 'Interconnects & Packaging' report begins on page 37.

Opportunities abound, as digital video becomes a reality

The video-on-demand demand

BY JUNKO YOSHIDA

The advent of digital vid-

Corp., LSI Logic Inc. and Motorola Inc. are among the hundreds of companies vying to participate

Inc., Tele-Communications Inc. (TCI), Cablevision, Hughes DirecTV and Bell Atlantic are

SCORES OF CABLE AND SATELLITE PROJECTS ARE OPENING THE WAY FOR DIGITAL ELECTRONICS

The rush is on to supply video-on-demand

Continued from page 1

Not all the competitors are household names, however. Tiny startup Entertainment Made Convenient² International Holding B.V. (EMC², Amsterdam, Netherlands) is preparing an end run around its formidable competition to become the first company to provide digital video-on-demand—in the U.S. within a mere 12 months, and globally within 16.

EMC² founder William A. Graven's vision of video-on-demand is fairly simple. Cable and phone companies would store films in huge digital video file servers and route them through digital switches directly to each TV viewer. With two-way communication capability, the servers could act as remote VCRs, even providing "trick modes," such as pause and fast-forward.

Rather than wait for a nationwide infrastructure to be established, however, Graven proposes installing black boxes into home VCRs that would accept digitally compressed films downloaded from direct broadcast satellite in five minutes to viewers' homes. With the film decompressed and stored in a VCR, consumers would maintain complete control over what they watch and when they watch it. The customer would have to buy a small satellite dish and an EMC²-compatible VCR.

This week, EMC² is signing an agreement with Bandai—Japan's leading toy company—and Nissho Iwai, a major trading company, to establish EMC² Japan K.K. The venture establishes EMC² in the country from which it must source home VCRs, its key components.

EMC² is still conducting extensive discussions with leading Japanese VCR manufacturers, including Hitachi Ltd., Toshiba, Victor Co. of Japan Ltd. (JVC), Matsushita Electric Industrial Co. Ltd. and Sony Corp.

Make a reservation

EMC² has already reserved eight channels from a new satellite to be launched next year in Japan, and the company will soon decide whether it will go with Astra or EutelSAT in Europe. Graven plans to start EMC²'s video-on-demand services first in the United States, in March 1994; then in Europe, in April 1994; and in Japan, in July of that year.

The interactive-video-services market is still attracting a host of new participants. For instance, Time Warner's interactive-network development project in Orlando, Fla., has piqued the interest of Microsoft chairman Bill Gates.

Last week, Gates said Microsoft hopes to participate in Time Warner's "two-way electronic superhighway into the home" project, scheduled for launch in early 1994 at 4,000 homes in Orlando.

Microsoft apparently is among some 60 vendors competing for orders from Time Warner for fiber-optic cabling and components, digital-compression systems, digital asynchronous transfer mode (ATM) switching technology and storage technologies. IBM, HP, Kaleida and Toshiba are also believed to be on the list. James A. Chiddix, senior vice president for engineering and technology at Time Warner Cable, said the company will announce a list of vendors by the end of the month.

Time Warner claims that its on-demand broadcast service will be fully interactive and immediate. In contrast, the film-delivery services promised by Hughes DirecTV and TCI by early 1994 are expected to be of the "near-on-demand" variety. Near video-on-demand is essentially a sophisticated variant of existing pay-per-view services. A film is shown on multiple channels, but at start times staggered 10 or 20 minutes apart. Viewers can put a chosen film on pause and then later tune in to the same point in the film, only in a subsequent broadcast on a different channel.

A limitation of near video-on-demand is that it is usually a one-way transmission. "Pausing" is not seamless and other VCR-like trick modes are not offered.

Time Warner's Chiddix said a fully interactive network requires terabyte-size video file servers, a giant switching matrix, and a set-top decoder that incorporates a microprocessor so it can operate interactively in a network environment with a central control. An operating system running on a network that ties into a billing system is required as well.

On the home-terminal end, Time Warner's system will need a graphical user interface (GUI), separate from the operating system, to navigate users through the interactive services.

Chiddix said Time Warner is considering MPEG-2, but it also wants the system to be able to download new decompression algorithms.

Dedicated machine

The integration of all of those technologies is expected to yield a home terminal with a price of $200 to $300 by 1995, said Chiddix. Asked whether that unit might be a multimedia player such as that offered by 3DO, Chiddix said the current plan is to offer "a dedicated machine for cable."

Richard Tompane, vice president for technology at 3DO, said his company is interested in the Time Warner project but acknowledged that 3DO's machine would be too expensive to serve as a cable TV terminal.

Rather, he said, 3DO hopes to license its technology to terminal builders. Set-top terminals based on 3DO technology would have interfaces to 3DO-compatible titles as well as the capability to transfer downloaded information to a 3DO machine, Tompane noted.

While Time Warner touts the full-service capability of its planned Orlando services, TCI's more conservative approach will initially serve a broader market. TCI and partner AT&T are currently conducting consumer tests outside Denver that offer both near- and full-video-on-demand services. The full service offers a selection of more than 2,000 movies. For the near-video-on-demand service, the partners have created a system with over 500 channels—more than enough to multiplex a handful of movies at staggered starts.

The network runs on a Unix-based system, with home terminals based on one of Motorola's 68000 microprocessors "heavily embedded with interfaces and other functions," said Tom Elliot, TCI's vice president for engineering and technology. TCI is designing a home terminal "to be mappable to an ATM system," he said.

TCI will continue the test, which started last summer, for another year.

While cable companies are rushing to start digital video transmission services, phone companies have been equally aggressive. The combination of compressed digital video and Asynchronous Digital Subscriber Line (ADSL) technology will allow phone companies to offer video over existing twisted-pair copper cable.

This summer, Bell Atlantic will start a video-on-demand test service over existing telephone wires for up to 400 of its employees living in northern Virginia. IBM RISC System/6000s will function as servers for the test.

SCORES OF CABLE AND SATELLITE PROJECTS ARE OPENING THE WAY FOR DIGITAL ELECTRONICS

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Continued from page 1

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The interactive video services

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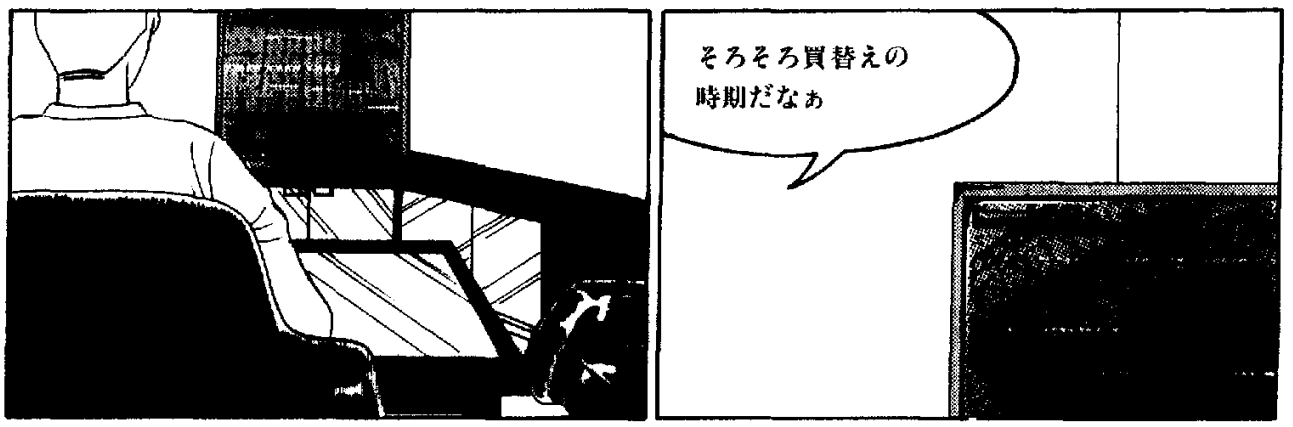
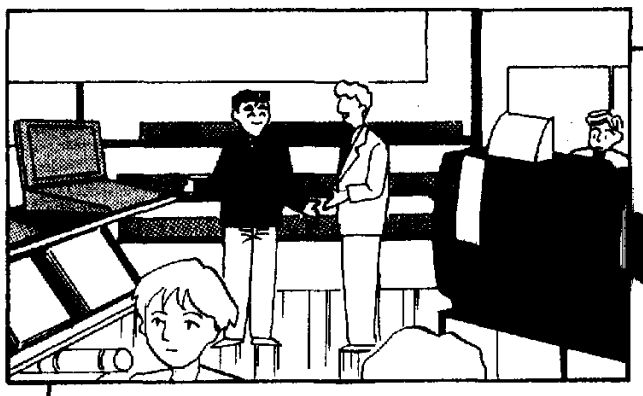
2 PART こんなに手軽で便利な Emc² systemとは…

衛星通信システムを利用した、
新しいスタイルのムービーレンタルサービス。
機器の買替え時期、衝動を活用し、市場の展開・拡大を図る。



PART-2　こんなに手軽で便利なEmc² systemとは…

Emc²
Entertainment Made Convenient²



システムをご説明しましょう

Emcスクエアシステムとは衛星通信の仕組みを利用して映画のレンタルサービスを行なうシステムです

在宅のまま見たい映画を見たい時に電話注文すれば通信衛星を経由して信号を受信・録画することができます後はお好きな時に再生していただくだけで良いわけです

料金は注文なさった映画のみ自動引落としになりますからレンタルショップでの借・返却行為や支払い等のわずらわしさがありません

それにEmcスクエアシステムのビデオデッキはS−VHSビデオ互換機構なので通常の衛星放送やビデオを楽しむことができます

Emc² system:
S-VHS Emc²ビデオデッキ(BS・CSチューナー内蔵)・アンテナを購入

※ビデオデッキごとに、会員番号が決められています。

Emc² system入会手続き

ムービーレンタルリスト到着

コンピューターセンターへ電話注文

通信衛星

受信・録画・再生

料金は自動引落とし

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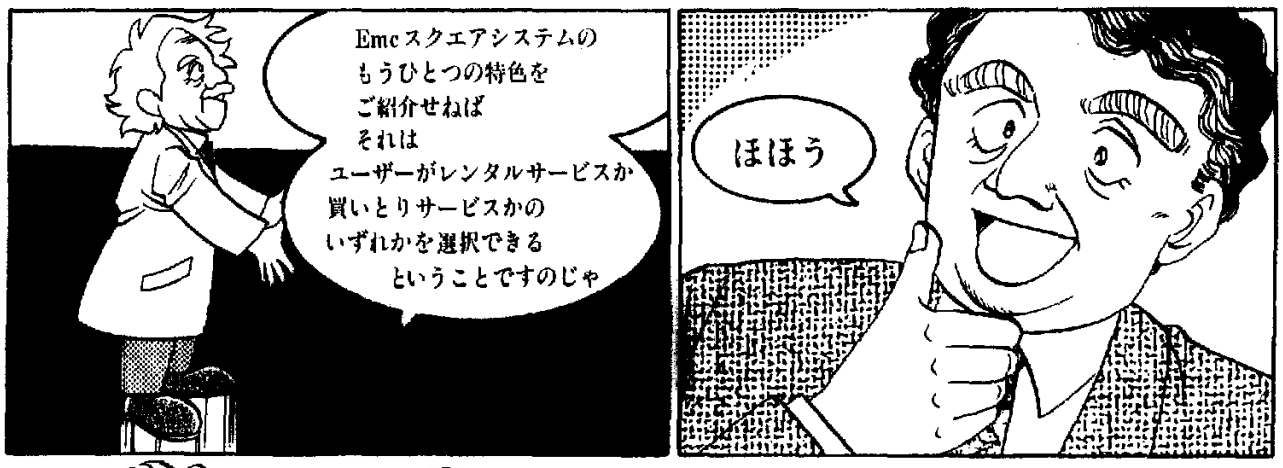
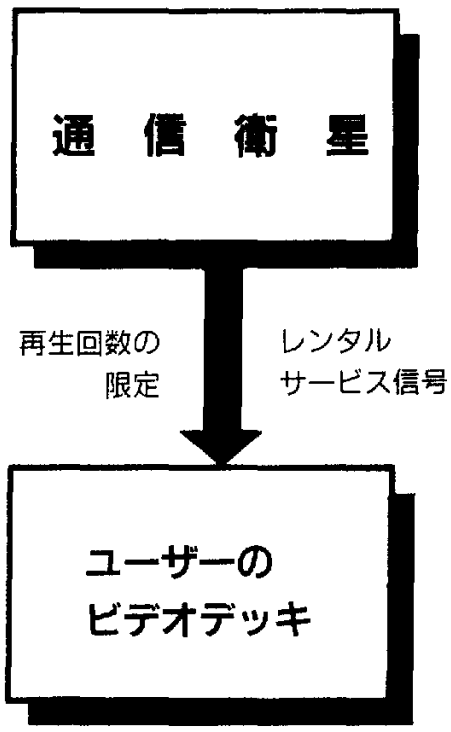


《レンタルサービスシステムとは》



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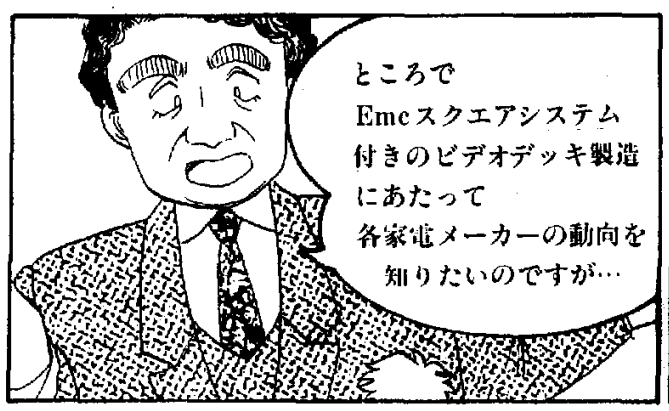

《家電メーカーの動向ポイント》

ポイント1
VHSの延命策が図れる

ポイント2
VHSの基本技術を活用できる

ポイント3
世界中にハードが拡がる

ポイント4
ソフトとハードの共同歩調